Report to the Governor

Water System Capacity

September 2005

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This report has been prepared to meet Safe Drinking Water Act Capacity Development requirements that the state produce a report for the Governor on the effectiveness of the state's water system capacity development efforts.

Contents

Executive Summary

Most people take safe drinking water for granted and are not aware of the difficulties communities face in providing it. Yet there are challenges in providing people with safe and reliable drinking water. The Washington State Department of Health Office of Drinking Water (ODW) regulates public water systems under state law and under a formal "primacy" agreement with the U.S. Environmental Protection Agency (EPA). This agreement delegates authority to the state to carry out the Safe Drinking Water Act (SDWA), which establishes minimum standards for drinking water quality.

The SDWA was enacted in 1974 to establish national drinking water standards aimed at preventing waterborne illness. In 1996, amendments to the SDWA required each state to develop and carry out a strategy to ensure water systems achieve the technical, managerial, and financial capacity (capacity development) to meet and maintain compliance with local, state, and federal drinking water standards.

Beginning October 1, 2002, and every three years thereafter, states must report on their progress in carrying out their capacity strategy to the governor, the public, and EPA. This is the second such report.

Since developing its capacity strategy in 1997, the Washington State Department of Health Office of Drinking Water has made significant progress in helping both troubled and thriving water systems improve their capacity to provide drinking water that meets state and federal standards. Office of Drinking Water takes the following actions to achieve its overall capacity goal and to succeed in its mission to protect the health of the people of Washington State by assuring safe and reliable drinking water:

- **Implements prioritized compliance strategy**
  Sets priorities to assure compliance efforts address highest health risks.

- **Issues annual operating permits**
  Provides various color-coded permits that measure how well the systems are meeting the requirements.

- **Administers operator certification program**
  Requires operators to be certified and competent to operate the system.

- **Reviews water system plan and other relevant documents**
  Requires comprehensive planning and engineering documents for all federally regulated water systems (i.e., a water system plan or small water system management program, project reports, and construction documents).

- **Conducts sanitary surveys (inspections)**
  Inspects water system facilities on a three or five-year schedule.

- **Uses new data system (SENTRY)**
  Supports implementation of the SDWA by improving data accuracy and availability for more than 17,000 public drinking water systems in Washington.

- **Administers source water assessment program**
  Requires systems to protect their wellheads and other water sources.

- **Provides comprehensive training and outreach**
  Provides training to water system personnel on a wide range of topics.

- **Jointly manages the drinking water state revolving fund (SRF) with Public Works Board**
  Lends funds to water systems to make needed improvements.

- **Jointly manages water system acquisition and rehabilitation program with Public Works Board**
  Provides grants to acquire and rehabilitate small failing water systems.

- **Implements security and emergency response program**
  Actively works with water systems and other partners to prepare for security and emergency response.

- **Establishes partnerships**
  Enhances existing partnerships and creates new partnerships with outside entities that share a common goal to assure safe and reliable drinking water.

These efforts by ODW to improve the technical, managerial and financial capabilities of water systems in our state have been successful, as demonstrated by Washington having very few "failing" water systems or systems under active enforcement. There are, however, still challenges facing water systems and ODW in their joint goal of ensuring that Washington's residents are provided with safe and reliable drinking water.

This report highlights the progress we have made in implementing ODW capacity strategy and the continuing challenges we face to ensure water systems have capacity in Washington.

Purpose of this Report

Washington State Department of Health Office of Drinking Water (ODW) regulates public water systems under state law and under a formal "primacy" agreement with the U.S. Environmental Protection Agency (EPA) to carry out the Safe Drinking Water Act (SDWA), which establishes minimum standards for drinking water quality.

The SDWA amendments of 1996 introduced a new national requirement for states to develop and carry out a strategy to ensure water systems have the technical, managerial, and financial capacity to meet local, state, and federal drinking water standards. This document reports on the status of ODW's capacity-building efforts and thus satisfies the reporting requirement.

Beginning October 1, 2002, and every three years thereafter, states must report on their progress in carrying out their capacity strategy to the governor, the public, and EPA, or face a 20 percent reduction of federal funds allocated to the state for the Drinking Water State Revolving Fund Program. This is the second such report.

This report highlights progress we have made in implementing the ODW capacity strategy and the continuing challenges we face to ensure water systems have capacity in Washington.

The Department of Health submitted this report to EPA to satisfy the capacity development reporting requirement identified in the SDWA. We summarized and offered copies of the report in an article in our quarterly newsletter, *Water Tap*, which we send to all Group A systems and interested parties in our state.

This report is also available electronically on the Department of Health's Web site at http://www4.doh.wa.gov/dw/publications/publications.cfm

Washington State's Capacity Strategy

The mission of ODW is to protect the health of the people of Washington State by assuring safe and reliable drinking water.

Safe and reliable water is vital to protecting public health and maintaining the state's economic vitality. In Washington, more than 17,000 drinking water systems provide water to more than five million residents, most of whom get their household water from water systems regulated under the SDWA.

As the table below illustrates, most Washington residents get their water from fewer than 200 large Group A[1] community systems, all of which serve more than 1,000 homes. Many of the rest are served by a large number of smaller systems – especially the nearly 13,000 Group B[2] systems that serve an average of eight people per system.

	Number of Systems	Residential Population Served
Group A Community Systems	2,277	5,272,582
Serving 1,000 or more homes	197	4,695,590
Serving 100 to 999 homes	525	432,560
Serving 15 to 99 homes	1,555	144,432
Group A Non-Community Systems Serving businesses, schools, motels, and other settings in which people are away from home.	1,852	—
Group B Systems: 2 to 15 homes	12,943	109,131
Private wells: 1 per home	—	600,000 (approx.)

Washington's strategy for ensuring adequate water system capacity uses a multi-component approach that:

- Informs water system purveyors about the requirements for owning and operating a water system, including knowledge of applicable drinking water regulations.
- Provides training and guidance materials to help water purveyors provide safe and reliable drinking water.

[1] Group A community water systems meet the federal definition of a water system (*i.e.,* serves fifteen or more connections for at least one hundred and eighty days or serves at least twenty-five people year round) and are thereby subject to the federal drinking water regulations.

[2] Group B water systems are public water system (*i.e.,* serves 2 or more connections) that do not meet the definition of a Group A system and are therefore not subject to the federal drinking water regulations but are subject to state regulations under Chapter 246-291, Washington Administrative Code.

- Reviews and approves planning and engineering documents to see how a system intends to achieve and maintain compliance with applicable regulations.
- Notifies purveyors when they violate a regulation and informs them of actions necessary to correct the situation and return to compliance.
- Provides technical assistance to help water purveyors address specific violations or other challenges involved in providing safe and reliable drinking water.
- Provides funding opportunities so systems can make needed improvements.
- Sets compliance priorities based upon the potential level of threat to public health.

Success of this capacity strategy depends on valued relationships with our many partners (local health jurisdictions, water utilities, private contractors, EPA, etc.) who are also involved in assuring safe and reliable drinking water.

Measures and Successes

Building system capacity is not possible through a one-dimensional state program, nor can it be done by water systems alone. Rather, the concept of adequate system capacity creates expectations for systems, regulatory agencies and other involved parties that they each play a role to achieve their mutual goal: for all systems to have the ability to achieve and maintain compliance with regulatory requirements.

Since developing the capacity strategy in 1997, Washington has made significant progress. The program descriptions below identify how each of the elements contributes to the capacity strategy and identifies some key measures and successes.

A critical piece of the capacity strategy is ODW's efforts to ensure water systems comply with state and federal drinking water regulations. Office of Drinking Water sets compliance priorities based on health risk, and develops and carries out compliance strategies to assure purveyors provide safe water. Examples of the effectiveness of this approach are demonstrated by the results of the programs listed below.

Surface Water Treatment Compliance. Surface water is more vulnerable to contamination than ground water. Although only about seven percent of the water systems in Washington use surface water as their source of drinking water, they tend to be large systems, serving more than half of the state's population. Since 1989, the Department of Health (DOH) has worked with water purveyors to correct 140 inadequately-treated surface water sources. Today, only **one** unfiltered source remains under a compliance action.

Nitrate in Drinking Water. Nitrates in drinking water can cause serious acute health affects. In 2002, ODW developed a compliance strategy to improve nitrate monitoring statewide. Group A water systems are required to monitor **quarterly** if sample results exceed 5 mg/L. Prior to 2002, only 59 percent of Group A systems met this nitrate requirement. By the end of 2004, 94 percent of systems were in compliance, due to ODW's compliance strategy that assigned staff to oversee the program and increase outreach, notification, and compliance activities to systems.

Operating Permits. Legislation passed in 1991 requires all Group A public water systems, (those systems meeting the federal definition of a public water system: 15 or more connections, or 25 or more people served for at least 60 days), to apply for an annual operating permit. The operating permit gives ODW a way to provide a basic evaluation of a system's performance in meeting drinking water requirements, and presents the findings in a meaningful way (a color-coded category system) for consumers, system owners and operators, permitting authorities and lending institutions.

Office of Drinking Water developed categories, which identify a water system's general compliance status, to provide information on the compliance status and adequacy of a public water system. Those categories are:

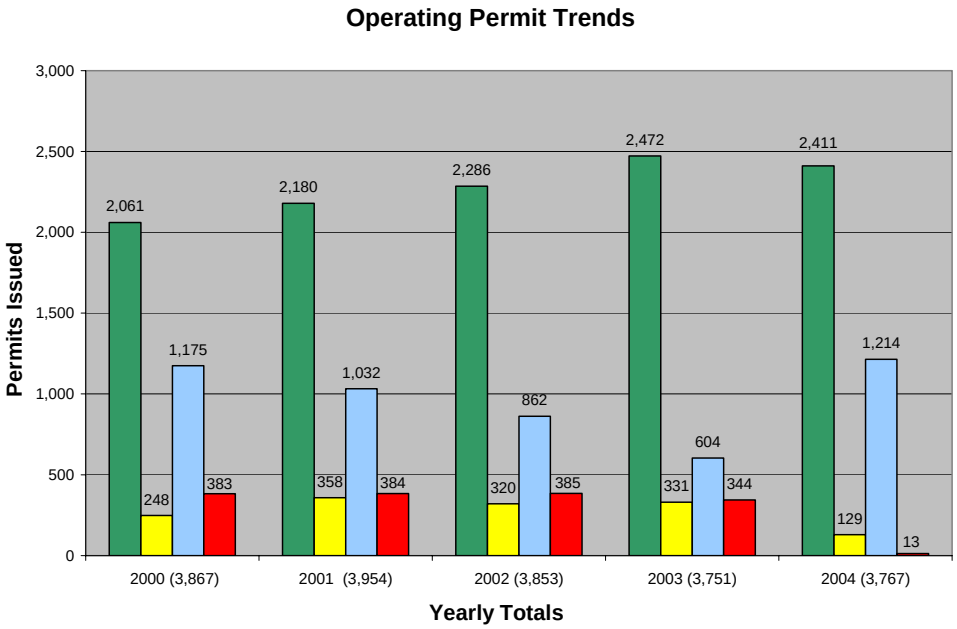
Green: Systems are in substantial compliance with all requirements. Office of Drinking Water recommends these systems be viewed as adequate for existing uses and additional connections up to the approved number of connections unless they are already at capacity.

Yellow: Systems are substantially in compliance with all requirements except they (1) have been notified to submit a water system plan but have not satisfied the planning requirement; or (2) are under a compliance agreement for a "state significant non-complier" violation. Office of Drinking Water recommends these systems be viewed as adequate for existing uses and additional connections up to the approved number unless otherwise limited by a compliance agreement.

Blue: Systems are substantially in compliance with requirements, except the system does not meet design approval requirements or has exceeded the number of approved connections established by the department. Office of Drinking Water recommends these systems be viewed as adequate for existing uses, but not adequate for adding new connections.

Red: Systems are in substantial non-compliance with requirements. Office of Drinking Water recommends these systems be viewed as inadequate for existing uses and no additional connections are allowed. This may result in denial of home loans, building permits, onsite sewage disposal permits, food service permits, liquor licenses, and other permits or licenses for properties served by the system.

In early 2004, ODW modified its Operating Permit Regulation, Chapter 246-294 WAC, to enhance the ability of the operating permit to accurately represent water system compliance. These modifications resulted in a significant reduction in red and yellow permits, and an increase in blue permits. These changes are reflected in the chart below.



Operator Certification. Regardless of the size of a drinking water system, the people responsible for operating the system play a critical role in assuring the safety of its drinking water and the prevention of waterborne illness. In January 2001, new regulations required nearly 1,900 very small water systems in Washington to have a certified operator for the first time.

Total Number of Systems Required to Have a Certified Operator = 2,658

Total Number of Systems In Compliance = 2,607

Total Number of Systems Out of Compliance = 51

Total Number of Certified Water Works Operators = 4,100

Office of Drinking Water works with systems that are out of compliance to help them obtain a certified operator, either by hiring an existing certified operator or by helping the system identify course-work that will allow someone who already works for the system to become a certified operator.

Water System Plan Review. All federally regulated water systems in Washington must develop one of two types of planning documents: (1) a water system plan (WSP), or (2) a small water system management program (SWSMP). The purpose of both WSPs and SWSMPs is to demonstrate a system's technical, managerial, and financial capability to achieve and maintain compliance with relevant local, state, and federal drinking water regulations.

Comprehensive water system plans are a critical component of the state's capacity development strategy. These documents are not static; after the document is developed, water systems use them in conducting their ongoing business.

Achieving compliance with water system planning requirements is currently a challenge to ODW. There are 819 systems that are required to submit updated WSPs for review and approval every six years. Of the 819 systems, 337 have not submitted their updated plan by the due date. To fully address this backlog, ODW is prioritizing which systems must develop and submit their updated plans based on public health criteria (e.g., systems with vulnerable surface water sources such as lakes or rivers that are experiencing compliance issues are placed ahead of systems on less vulnerable groundwater sources such as wells that do not have any compliance issues). All other federally-regulated water systems (approximately 3,200) are required to develop but not submit their SWSMP unless they are experiencing problems or requesting DWSRF funds. Currently, ODW checks to determine if purveyors if have developed their SWSMP when conducting sanitary surveys; this information is not tracked.

Sanitary Surveys. Sanitary surveys are periodic (three and five-year) inspections of water system facilities, operations and recordkeeping. The inspections identify conditions that may present a sanitary or public health risk. State and local health jurisdiction staff and independent contractors conduct these surveys.

Office of Drinking Water has recently dedicated additional resources to the sanitary survey program and has begun tracking sanitary survey information. At the end of 2004, 81 percent of the Group A water systems (3,317 of 4,087) had been surveyed within the last five years. During 2004, the program conducted 802 sanitary surveys.

Of these 802 sanitary surveys, 89 percent found no deficiencies classified as "high public health risk." Of the sanitary surveys that did identify a high public health risk, 47 percent were resolved within the timeline specified in the compliance directive. Office of Drinking Water needed to take additional compliance action against 21 percent for failure to comply with the compliance directive.

New Data System Development. SENTRY, first activated in May 2002, is ODW's primary data system supporting implementation of the federal Safe Drinking Water Act. It provides an inventory of Washington's more than 17,000 (Group A and Group B) public drinking water systems and the results of their water quality samples for regulated inorganic, synthetic and volatile organic compounds, bacteriological contaminants and radionuclides. The system tracks current and historical public water system compliance with state and federal regulations and is used to report compliance information to EPA. It includes data on each system, more than 4,000 operating permits for all Group A systems, and approximately 160,000 water quality samples taken every year. SENTRY is used to produce water quality monitoring reports that identify and schedule individualized testing requirements for water systems.

Source Water Assessment Program. A key element for utilities in assuring long-term capacity is protection of the drinking water supply. Under the 1996 amendments to the federal Safe Drinking Water Act, states are required to implement the Source Water Assessment Program (SWAP). There are four major components to the program. For each federally-regulated community public drinking water system, the state drinking water program is required to ensure that water systems:

1. Identify their source water protection area(s).
2. Inventory each area for potential contaminant sources.
3. Conduct a susceptibility assessment for each drinking water source.
4. Make their findings readily available to anyone.

In Washington, we have 2,282 systems required to do these activities. As of November 2004, 99 percent (2,263) were in compliance.

Comprehensive Training and Outreach. Office of Drinking Water staff and third party contractors, such as local health jurisdictions, have conducted training for many years. The trainings incorporate all aspects of owning and operating a water system. These overview classes help water system operators meet the requirements of state and federal drinking water laws and protect the health of their customers.

Office of Drinking Water has also used a one-time federal expense reimbursement grant to assist small systems (those serving fewer than 3,300 people) with training costs. These grant funds will no longer be available after December 2006, so ODW will have to identify new funding in order to continue to:

- Provide training to certified operators of small water system about ODW's strategic direction and highest program priorities.
- Develop contractual partnerships with third-party technical assistance providers to teach these courses.
- Provide low-cost quality training in priority subjects to enable operators to supply safe and reliable drinking water.
- Help operators meet their professional growth requirements.

Office of Drinking Water also maintains an updated training calendar on its Web site where systems can see the upcoming training sessions available from ODW and outside third party trainers.

Drinking Water State Revolving Fund (DWSRF). Washington is a national leader in getting these federal funds to drinking water systems for capital improvements, enhancing our ability to protect public health and improve regulatory compliance. Office of Drinking Water has jointly managed the DWSRF loan program with the Public Works Board since its inception in 1997. The loan program uses a rating system that awards points based on the project's priority as a public health risk. Since 1997, ODW has committed more than $200 million in loans to both publicly and privately-owned small water systems, ranking us among the top three states in the nation for funding improvements. Twenty-five percent of loans executed to date solved significant public health problems that would have resulted in serious compliance actions.

In addition, a portion of the federal funds (26 to 31 percent, depending on the year) are set aside to fund technical assistance and other critical support for building drinking water capacity in Washington (e.g., funding our drinking water data system, SENTRY, development and implementation, and paying for ODW staff and third-party technical assistance).

Water System Acquisition and Rehabilitation Program (WSARP). The Washington State Legislature has committed a total of $6 million ($4 million in 2003, and $2 million in 2005) to assist municipal water systems in acquiring and rehabilitating small failing water systems. The acquiring jurisdictions will own and operate the system(s) to be acquired, providing customers with a well-managed system and a safe, reliable drinking water source.

The 2003 funding provided partial grants to the top 14 projects that were ready to proceed. These grant recipients have acquired and rehabilitated 28 public water systems to address the following public health issues:

- Unsafe spring source
- Arsenic levels exceeding state standard
- Boil water orders
- Lead and copper levels exceeding state standard
- Shallow wells
- Nitrate levels exceeding state standard
- Low pressures and backflow hazards
- Iron and manganese levels exceeding state standard
- Bacteriological contamination

Security and Emergency Response. Office of Drinking Water is actively working with water systems and other partners to prepare for security and emergency response. Water systems must prepare for emergencies such as earthquake, flood, drought or intentional contamination. Elements of this effort include promoting:

- A collaborative environment for sharing information and resources that enhance water system security and emergency response.
- Networks and systems that provide critical information in a timely fashion to water systems and local health jurisdictions.
- Coordination between local, state and federal partners to provide training on a broad array of water system security and emergency response topics.

Due to the recent emphasis on water system security at the national level, ODW has trained water systems across the state on how to conduct vulnerability assessments and develop or update emergency response plans. Office of Drinking Water also conducted three drinking water contamination emergency response tabletop exercises during July 2004.

Partnerships. Office of Drinking Water collaborates with many others to assure safe and reliable drinking water supplies in Washington. Local health jurisdictions are a key partner in protecting public health. They are involved in many drinking water regulatory activities, including inspections of drinking water systems and emergency response. Currently, 29 out of 34 local health jurisdictions have entered into agreements with ODW to serve as the primary contractor for conducting sanitary surveys of small water systems.

Federal funding has also allowed the department to form stronger relationships with third party technical assistance and training providers. Evergreen Rural Water of Washington has been a valuable contributor, providing training and technical assistance to small water systems across the state. The Washington Environmental Training Resource Center and the Rural Community Assistance Corporation are other major partners in training water system operators and managers. Maintaining these partnerships is critical to providing hundreds of courses and countless hours of technical assistance to water systems and their operators in order to ensure systems are operated by qualified, well trained operators.

Challenges

ODW and water systems still face several challenges in achieving their joint goal of ensuring that water systems provide safe and reliable drinking water to Washington residents.

Infrastructure Needs vs. Available Funding

Many drinking water systems need significant infrastructure repair or replacement. Some will find it impossible to resolve their deficiencies, address growing regulatory requirements and still meet public expectations for delivery of safe drinking water. The results from the 2003 Drinking Water Infrastructure Needs Assessment survey showed Washington needs $6.7 billion in infrastructure improvements over the next 20 years. There is only $20-30 million per year available to lend from the Drinking Water State Revolving Fund program. The considerable gap between the need and available funding will challenge us in our effort to assure safe and reliable drinking water unless additional financial resources are made available.

Water System Plan Review

Assuring compliance with water system planning requirements is a challenge to ODW. There significant ongoing work in reviewing and approving water system plans (currently there are 819 systems that are required to submit updated plans for review and approval). And ODW also faces a substantial task in assisting thousands of water systems with the development of their small water system management programs.

New Rule Requirements

Federal regulations for public drinking water systems continue to grow in number and complexity as advancements in science allow lower detection levels of contaminants. In 1986, there were only 23 regulated contaminants. Currently, that number has grown to 102 and is expected to continue to increase.

Along with the regulated contaminants, many other requirements apply to public water systems, such as operation and maintenance, water quality sampling and reporting, emergency response, and routine planning and engineering. Many systems find the requirements overwhelming. Furthermore, the additional requirements are also going to be a challenge for ODW to adopt regulations and to develop and implement these new programs.

Compliance Enforcement

Success in implementing new and existing programs hinges on a strong and active compliance strategy.

To meet federal requirements, ODW must develop and implement a timely and appropriate enforcement process for the small percentage of water systems that fail to meet the requirements. These enforcement and compliance activities, however, represent another challenge in program prioritization.

Office of Drinking Water often does not have the resources to address violations considered a low risk to public health in a timely manner, and must choose to focus on violations that pose a higher public health threat. The program needs additional financial and staff resources to boost enforcement and compliance efforts. This would include providing technical assistance to water systems so they can resolve problems before those problems pose a health risk.

Conclusions and Next Steps

Washington has been successful in building capacity in its water systems. Despite measurable progress, however, significant challenges remain. Washington must continue to improve and strengthen its effort to ensure water systems have what they need to comply with drinking water regulations. To achieve this goal, the Office of Drinking Water will:

- Instruct systems on actions they must take to achieve and maintain compliance, and take actions if systems are unwilling or unable to comply.
- Provide operating permits to water systems each year that report on each system's compliance and adequacy.
- Ensure qualified, competent operators are responsible for the operation and maintenance of water systems.
- Facilitate comprehensive planning, in which water systems identify and plan for major challenges.
- Inspect water systems and report on the condition of system components.
- Develop and implement SENTRY (ODW's new data system) to ensure water systems receive notice of required testing and to ensure that accurate data are available for querying and analysis.
- Provide information about training opportunities for water system owners and operators.
- Manage the DWSRF and WSARP grant and loan programs to make funds available for needed capital improvements and restructuring.
- Conduct training on security and emergency response.
- Enhance existing partnerships and create new partnerships with outside entities that share the common goal of ensuring safe and reliable drinking water.

Washington is committed to improving the capacity of our 17,000 public water systems to provide safe and reliable drinking water to the residents of our state. We will measure outcomes of our program and report back on these activities on a continuing basis.